

1. Which is an example of a classification task?

1 / 1 point

- ☒ Based on the size of each tumor, determine if each tumor is malignant (cancerous) or not.
- ☐ Based on a patient's age and blood pressure, determine how much blood pressure medication (measured in milligrams) the patient should be prescribed.
- ☐ Based on a patient's blood pressure, determine how much blood pressure medication (a dosage measured in milligrams) the patient should be prescribed.

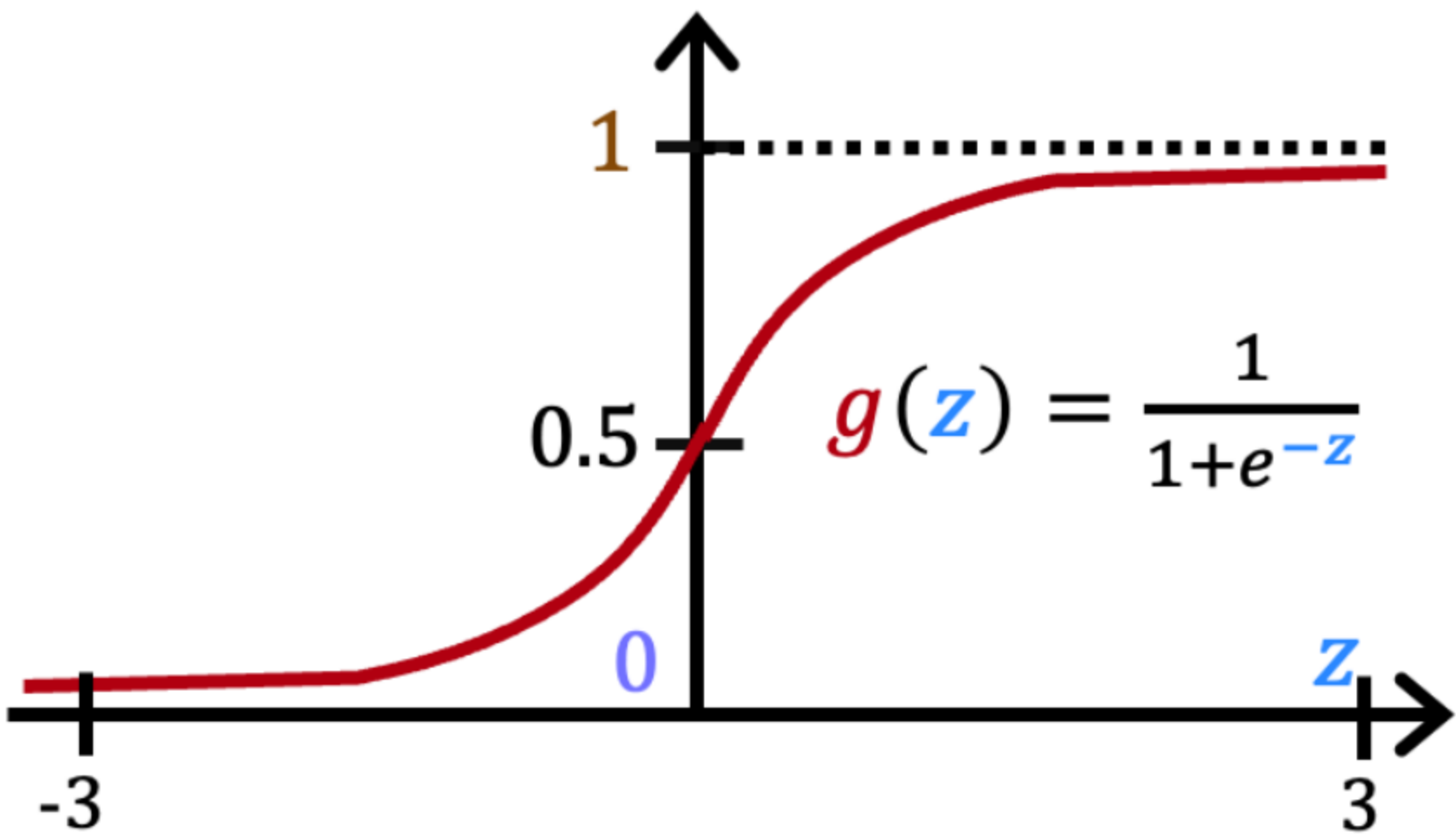
✓ Correct

This task predicts one of two classes, malignant or not malignant.

2. Recall the sigmoid function is  $g(z) = \frac{1}{1+e^{-z}}$

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sigmoid function



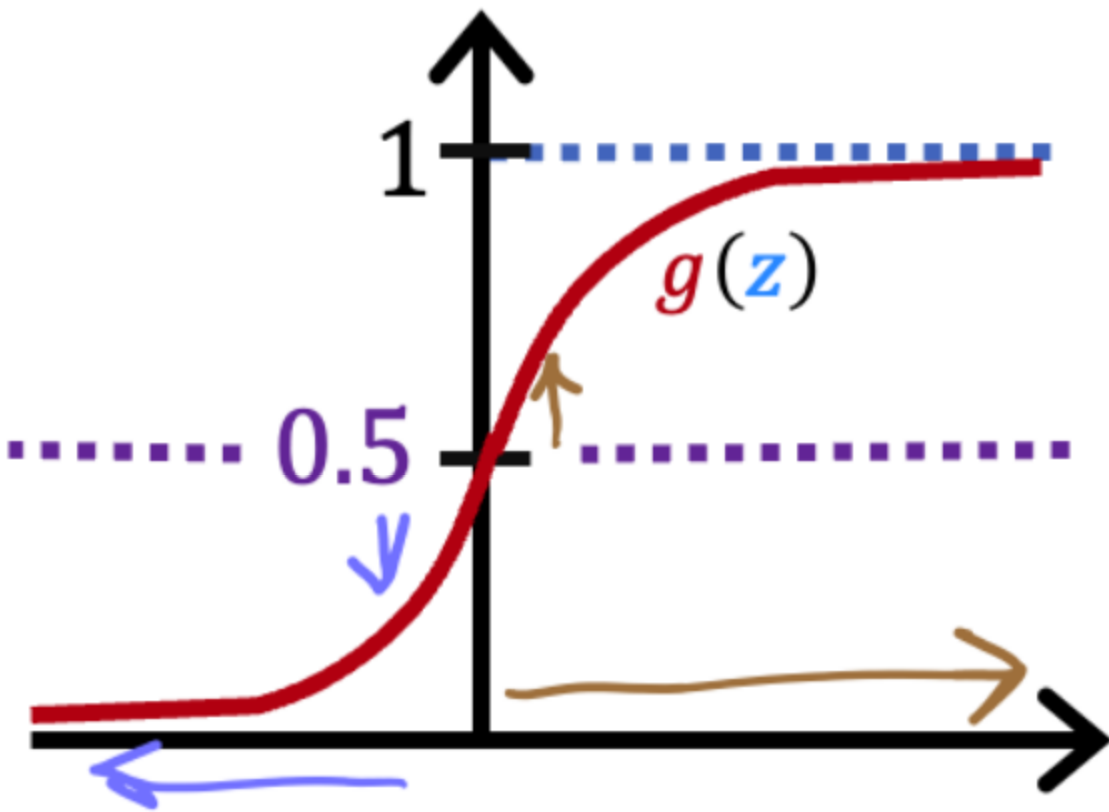
If  $z$  is a large positive number, then:

- ☐  $g(z)$  is near negative one (-1)
- ☐  $g(z)$  will be near zero (0)
- ☐  $g(z)$  will be near 0.5
- ☒  $g(z)$  is near one (1)

✓ Correct

Say  $z = +100$ . So  $e^{-z}$  is then  $e^{-100}$ , a really small positive number. So,  
 $g(z) = \frac{1}{1+\text{a small positive number}}$  which is close to 1

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3. A cat photo classification model predicts 1 if it's a cat, and 0 if it's not a cat. For a particular photograph, the logistic regression model outputs  $g(z)$  (a number between 0 and 1). Which of these would be a reasonable criteria to decide whether to predict if it's a cat?

- ☐ Predict it is a cat if  $g(z) < 0.7$
- ☒ Predict it is a cat if  $g(z) \geq 0.5$
- ☐ Predict it is a cat if  $g(z) = 0.5$
- ☐ Predict it is a cat if  $g(z) < 0.5$

✓ Correct

Think of  $g(z)$  as the probability that the photo is of a cat. When this number is at or above the threshold of 0.5, predict that it is a cat.

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4. True/False? No matter what features you use (including if you use polynomial features), the decision boundary learned by logistic regression will be a linear decision boundary.

- ☐ True
- ☒ False

✓ Correct

The decision boundary can also be non-linear, as described in the lectures.